Remarks

The application has been amended to better define the present invention. Reconsideration is respectfully requested.

With respect to paragraph 2 of the "Detailed Action", the following comments are provided.

The Examiner is correct in the sense that the Equation 18 refers to a Moving Average Filter as described in the patent application as filed and not an Exponential Averaging Circuit.

However, we respectfully refer the Examiner to the following URL

http://en.wikipedia.org/wiki/Moving average

According to this article, a moving average operation may be categorized into the following types:

1. Simple Moving Average further classified as Prior Moving Average and Central Moving Average
2. Cumulative Moving Average
3. Exponential Moving Average or Exponential Weighted Moving Average
4. Volume Moving Average

Since the application describes a Moving Average Filter, we believe that this Moving Average Filter Operation applies to all the abovementioned Moving Average categories. We have, therefore, accordingly amended claim 8 to clarify the matter.

With respect to Paragraph 3 of the Office Action, the Applicant would like to provide the following published paper from the same inventors which was available to those of ordinary skill in the art on the filing date of the application to clarify the matter.

A.N. Mody and G.L. Stuber, "Open Loop Timing Recovery and Channel Estimation for MIMO OFDM Systems" Proceedings of the 8th International OFDM Workshop, September 24th and 25th, 2003, Hamburg, Germany which is at the following URL:

http://www.et2.tu-harburg.de/Veranstaltunger/OFDM/2003/

where Least Squares estimation, refers to the Least Squares estimation of the channel to remove the effects of the sampling frequency offset. This can be found on Page 4, Column 2, Paragraph 2. Claim 11 has been amended accordingly to clarify the matter.

With respect to paragraph 4 of the Office Action, the following clarifying remarks are provided.

A.

T = Sampling Time at the Transmitter = Accurate Sampling Time at the Receiver for No Errors = 1/(Sampling Frequency at the Receiver for No Errors)

The term

T^1 = Actual Sampling Time at the Receiver = 1/(Actual Sampling Frequency at the Receiver).

Examiner is correct that the term T and T^1 have not been formally defined.

Term `T` has been defined on Page 14 of the Document "20070031 appl. as filed.pdf" – Paragraph 1 – "The sampling frequency of the ADC may be doubled to acquire synchronization to an accuracy of ½ the sampling time T"

Reference – To clarify the terms T and T^1 further, we would like to provide the attached published paper which was available to those of ordinary skill in the art on the filing date of the application.

A.N. Mody and G.L. Stuber, "Open Loop Timing Recovery and Channel Estimation for MIMO OFDM Systems" Proceedings of the 8th International OFDM Workshop, September 24th and 25th, 2003, Hamburg, Germany which is at the following URL:

http://www.et2.tu-harburg.de/Veranstaltunger/OFDM/2003/

where the terms T and T^1 have been defined on Page 2, Column 2, Paragraph 2.

B.

The Term I = an integer which can take on value 1, 2, 3, 4 etc. is a design parameter – This has been defined on Page 13 of the Document "20070031 appl. as filed.pdf" Paragraph 3 – "The number of samples N is established as a certain fraction of the number of data samples N in an OFDM block, such as N = N/I, where I is an integer, such as 1, 2, 4…"

To further clarify the term I, we would like to provide the attached published paper which was available to those of ordinary skill in the art on the filing date of the application.

A.N. Mody and G.L. Stuber, "Open Loop Timing Recovery and Channel Estimation for MIMO OFDM Systems" Proceedings of the 8th International OFDM Workshop, September 24th and 25th, 2003, Hamburg, Germany which is at the following URL:

http://www.et2.tu-harburg.de/Veranstaltunger/OFDM/2003/

Where the term I has been defined on Page 2, Column 1, Paragraph 2.

C. Trace of a matrix is defined as the sum of its diagonal elements. See the Wikipedia URL as a reference

Reference – http://en.wikipedia.org/wiki/Trace_(linear_algebra)

The meaning of the term Trace, should be clear to someone of the ordinary skill in the art.

With respect to paragraph 5, claim 12 has been amended in the way suggested by the Examiner to delete the term "matrix correlation".

With respect to Paragraphs 7 and 8 the following comments are provided.

The term "phase compensation" has been given on Page 17 of the specification.

To clarify this phase compensation term further, we would like to provide the following document which the Applicant believes contains materials which would have been known to those of ordinary skill in the art on the filing date of the application.

Ph. D Thesis – Apurva N. Mody – Department of Electrical and Electronics Engineering – Georgia Institute of Technology

A.N. Mody "Signal Acquisition and Tracking for Fixed Wireless Access Multiple Input Multiple Output Orthogonal Frequency Division Multiplexing" Presented to Academic Faculty of Georgia Institute of Technology in partial fulfillment of the Requirements for the Doctor of Philosophy, Department of Electrical and Electronics Engineering, 2004.

Where page 41, Equation 51 and page 42, Line 1 further teach this phase compensation term, based on the difference in sign.

With respect to paragraph 9, the Applicants point out that the process claims under consideration satisfy the requirements of 35US§101 since they are tied to another statutory category. This other statutory category would be the apparatus of a multiple-input multiple-output onthogonal frequency divisional multiplexing (MIMO-OFDM) system.

It is believed that the application is now in condition for allowance. If the examiner believes that any matters are still at issue, he is requested to contact applicant's undersigned attorney.

Respectfully submitted,

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